

DISCUSSION FOR THE OFFICE ACTION REJECTIONS

Rejection under 35 U.S.C § 102

Claims 1-7 are rejected under 35 U.S.C. 102 (b) as being anticipated by Hsiao et al. (U. S. Patent No. 4,628,991) or Taylor. (U. S. Patent No. 5,209,291).

Applicant respectfully disagrees with the Office Action rejection.

The present invention provides a cooling system with pipeline system. A plurality of pipelines 210 are formed inside the hot plate 200 (Fig. 2A), the pipelines are arranged in such a way that a sealed close-loop structure is formed and the pipelines are not crossed with each other (Figs. 2A & 2B). Each pipeline 210 has an inlet 220 and outlet 230, and the inlet 220 and the outlet 230 of each pipeline 210 are formed into a triangle-like structure in sealed close-loop non-crossing pipeline system (Fig. 2A), wherein the inlet and outlet of each pipeline are at least within the same quadrant of the hot plate. Cooling fluid enters each inlet of each pipeline to cool the hot plate 200 by transferring the heat from the hot plate through the fluid to the outlet. Moreover, with the arrangement of the present invention, multiple pipelines, for example, more than 2 sets of looped pipelines, can be provided to efficiently cool the hot plate.

Hsiao discloses an apparatus for testing wafer scale integrated circuit. The apparatus consists a plurality of cooling channels 56 (Figs. 3 and 4) are formed parallel along on surface of the cover 8 (Column 3, lines, 15-16). The cooling channels are extended into finger-like structure 62 with arcuate ends 58,60 at the flanges 14, 16 of the finger 62 (shown in Figs. 2& 4. Column 3, lines 17-20).

Comparing the Fig. 2A of the present invention to the Fig. 4 of Hsiao, it is obvious that the cooling system of the invention distinguishes over the cooling system of Hsiao. Because Hsiao does not disclose forming a sealed close-loop non-crossing pipeline system in the cooling system. Hsiao also fails to disclose the inlet and the outlet of each pipeline are arranged into a triangle-like structure in the sealed close-loop non-crossing pipeline system. Instead, Hsiao discloses forming the parallel cooling channels 56 within a cover 8 and the cooling channels 56 are formed as formed whole unit with arcuate ends 58, 60 (Fig. 4), wherein ends of the cooling channels are on opposite sides of the plate 6.

However, the cooling system of the present invention has a plurality of pipelines, the outlet and the inlet of each pipeline are separated and arranged into a triangle-like structure, and the pipeline are arranged in a sealed close-loop non-crossing pipeline system.

Therefore, applicant respectfully submits that Hsiao fails to disclose the requisite features of the invention as recited in amended claim 1.

Taylor (U. S. Patent No. 5,209,291) discloses a cooling device that has two pair of inlets and outlets (Fig. 1, Column 3, lines 47-48) and the branch tubes 26 are formed at the central portion of the cylindrically shaped device (Fig. 2). Similar to Hsiao, Taylor does not disclose a sealed close-loop non-crossing pipeline system of a cooling system. Moreover, the inlets of Taylor are disposed orthogonally to the outlets (col. 3, lines 44-50). The cooling system of Taylor, therefore, can provide at most two pairs of pipelines, whereas the close-loop pipeline of the present invention provides the inlet and the outlet to fall at least within the same quadrant. As a result, the present invention can provide more than two pairs of pipelines.

Applicant respectfully submits that Taylor cannot achieve the present invention as recited in amended claim 1 because it fails to disclose all the claimed features.

Applicant respectfully submits that neither Hsiao, nor Taylor, either alone discloses the invention as recited in amended claim 1, and claims 2-7 depending therefrom. Withdrawal of this rejection is respectfully requested.

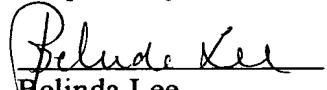
CONCLUSION

As can be seen above, the references do not anticipate, teach, or suggest the characteristics of the present invention. The Applicant thus respectfully requests the Examiner's reconsideration of the Applicant's present invention as a whole. The Applicant also respectfully requests that the rejections be withdrawn.

If the Examiner believes that a telephone conference would expedite the examination of the above-identified patent application, the Examiner is invited to call the undersigned.

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VERSION WITH MARKING TO SHOW CHANGES MADE

In the Claims

Please amend the claim 1 as follows:

1. (Once Amended) A cooling system for a hot plate, comprising:

a plurality of internal pipelines, wherein each pipeline has an inlet and an outlet, the inlet and the out let of each pipeline are arranged into a sealed close-loop non-crossing pipeline system, the inlet is suitable for a cooling fluid to enter and the outlet is suitable for the cooling fluid to exhaust.

Please add new claims 15 & 16.